

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 3174.1012004	FOR FURTHER ACTION see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. PCT/US2004/019917	International filing date (day/month/year) 21/06/2004	(Earliest) Priority Date (day/month/year) 21/06/2003
Applicant APEILIS, INC.		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 4 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (See Box II).

3. ☐ **Unity of invention is lacking** (see Box III).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regards to the **drawings**,

a. the figure of the **drawings** to be published with the abstract is Figure No. 3

☒ as suggested by the applicant.

☐ as selected by this Authority, because the applicant failed to suggest a figure.

☐ as selected by this Authority, because this figure better characterizes the invention.

b. ☐ none of the figures is to be published with the abstract.

INTERNATIONAL SEARCH REPORT

International Application No
PCT/US2004/019917

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 G06K9/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 G06K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, INSPEC

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6 061 463 A (PHILLIPS NICHOLAS J ET AL) 9 May 2000 (2000-05-09) column 9, lines 13-42	25, 27-31
A	the whole document	1-24, 26, 32-124
A	----- US 4 544 267 A (SCHILLER MICHAEL) 1 October 1985 (1985-10-01) the whole document	1-124
A	----- US 6 341 028 B1 (BAHUGUNA RAMENDRA D ET AL) 22 January 2002 (2002-01-22) the whole document	1-124
	----- -/--	

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents:

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *G* document member of the same patent family

Date of the actual completion of the international search

5 November 2004

Date of mailing of the international search report

23/11/2004

Name and mailing address of the ISA

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Authorized officer

Grigorescu, C

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US2004/019917

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>M.P. GEORGES, V.S. SCAUFLAIRE, P.C. LEMAIRE: "Compact and portable holographic camera using photorefractive crystals. Application in various metrological problems" APPL. PHYS. B, vol. 72, 20 April 2001 (2001-04-20), pages 761-765, XP002304057 the whole document</p> <p>-----</p>	1-124

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US2004/019917

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 6061463	A	09-05-2000	AT 195189 T AU 1925595 A DE 69518233 D1 EP 0749610 A1 JP 9509490 T	15-08-2000 04-09-1995 07-09-2000 27-12-1996 22-09-1997
US 4544267	A	01-10-1985	AT 32554 T CA 1161250 A1 DE 3176657 D1 EP 0052348 A1	15-03-1988 31-01-1984 31-03-1988 26-05-1982
US 6341028	B1	22-01-2002	US 6002499 A US 5629764 A US 5892599 A US 6111671 A AU 6542596 A WO 9703412 A1 US 6038043 A	14-12-1999 13-05-1997 06-04-1999 29-08-2000 10-02-1997 30-01-1997 14-03-2000

INTERNATIONAL COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 3174.1012006	FOR FURTHER ACTION see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. PCT/US2004/019713	International filing date (day/month/year) 21/06/2004	(Earliest) Priority Date (day/month/year) 21/06/2003
Applicant APRILIS, INC.		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 5 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

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3. ☒ **Unity of invention is lacking** (see Box III).

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☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings**,

a. the figure of the **drawings** to be published with the abstract is Figure No. 1

☒ as suggested by the applicant.

☐ as selected by this Authority, because the applicant failed to suggest a figure.

☐ as selected by this Authority, because this figure better characterizes the invention.

b. ☐ none of the figures is to be published with the abstract.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2004/019713

Box II Observations where certain claims were found unsearchable (Continuation of Item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box III Observations where unity of invention is lacking (Continuation of Item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-25, 82-106, 163, 164-168, 175-179, 186

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-25,82-106,163,164-168,175-179,186

Feature detection in biometric images

2. claims: 26-38,107-119,169,180

Storage and compression of biometric images

3. claims: 39-70,120-151,170-173,181-184

Retrieval and comparison of biometric images

4. claims: 71-81,152-162,174,185

General-purpose image processing operations

INTERNATIONAL SEARCH REPORT

International Application No
PCT/US2004/019713**A. CLASSIFICATION OF SUBJECT MATTER**
IPC 7 G06K9/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHEDMinimum documentation searched (classification system followed by classification symbols)
IPC 7 G06K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	JIANG X ET AL: "Detecting the fingerprint minutiae by adaptive tracing the gray-level ridge" PATTERN RECOGNITION, ELSEVIER, KIDDLINGTON, GB, vol. 34, no. 5, May 2001 (2001-05), pages 999-1013, XP004321319 ISSN: 0031-3203 Section 2. "Adaptive tracing the ridge of a fingerprint", Section 3. "Minutiae detection", Section 4. "Post-processing" ----- -/--	1-25, 82-106, 163-168, 175-179, 186



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

° Special categories of cited documents:

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *G* document member of the same patent family

Date of the actual completion of the international search

5 November 2004

Date of mailing of the international search report

20. 07. 2005

Name and mailing address of the ISA

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INTERNATIONAL SEARCH REPORT

International Application No
PCT/US2004/019713

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>VIZCAYA P R ET AL: "MULTI-RESOLUTION FUZZY APPROACH FOR SINGULARITY DETECTION IN FINGERPRINT IMAGES"</p> <p>19 November 1996 (1996-11-19), PROCEEDINGS OF THE SPIE, SPIE, BELLINGHAM, VA, US, PAGE(S) 46-56 , XP000957351</p> <p>ISSN: 0277-786X</p> <p>the whole document -----</p>	<p>1-25, 82-106, 163-168, 175-179, 186</p>